Rolling Your Own - 120, Medium Format, - X-Ray Film

Oh! - YES you CAN.

Being the sort of guy I am, I am never satisfied with the plain, “normal” sort of way of doing most anything. Particularly that of making photographic images.

As any experimenter in the field of Photography knows, there has been extensive research and development (pardon that pun) with the science and art of our chosen passion of making images. However - Just because some things have not been done or the use of these materials are used in different ways, does not really mean that they can NOT be done. Perhaps because of difficulties, or the quality, some practices are not favored. Some are not practical, a few are impossible - and some are just damn stupid. For instance - “Turning lead into gold”. That was tried a few times by the Alchemists - (who where the first Chemists, and the “birth” of the science of Chemistry). So - common sense prevails when trying anything “different”.

I began the use of X-Ray Films about 4 years ago. As I have a tight budget to contend with. X-Ray films are cheap as compared to panchromatic films. If you have a 4X5 camera - you can cut the sheet film to fit your 4X5 film holders. (i.e.= Often you may buy a 100 count box of 8"X10" of ***“Fiji HR-D”*** *X-Ray film* for 40 dollars (U.S.D.) Under the RED safe-lights of the darkroom area you shall cut these on any paper cutter to 4X5 sheets. Now you have 400 sheets of usable film product. The cost per exposure is about 10 Cents a shot. As compared to ***Ilford 4X5 ISO-100***, the film sheets of four boxes of a count of 25, would cost about **$226.00** for a total of 100 count. That comes to about $2.26 per exposure, and they seem to only come in 25 sheet boxes. So - That’s a 200+% savings))

But - Why X-Ray Films?

Outside of he cost is low, it is a good way for the beginner of large format camera work, to practice without many problems. The ISO of some X-Ray films is as high as 100, when used on bright sunny days. In the shaded areas the ISO of 50 I recommend. Also - most X-Ray films are double sided coated with light sensitive emulsion. So - you can not get this stuff wrong when placing into your film holders. Not to mention that most X-Ray Films are orthochromatic in their light sensitivity. Blue and Green colors predominate - but No RED will record. That is a bit of a plus for the beginner’s use of X-Ray film, because you can load it into the film holders under the save-lights of the darkroom area.

I have explained my experiments with X-Ray films in a different PDF article (available upon request, free of charge). In this PDF article, I wanted to cover the use of cut strips of X-Ray films to be used in a medium format camera. (Further savings per exposure.)

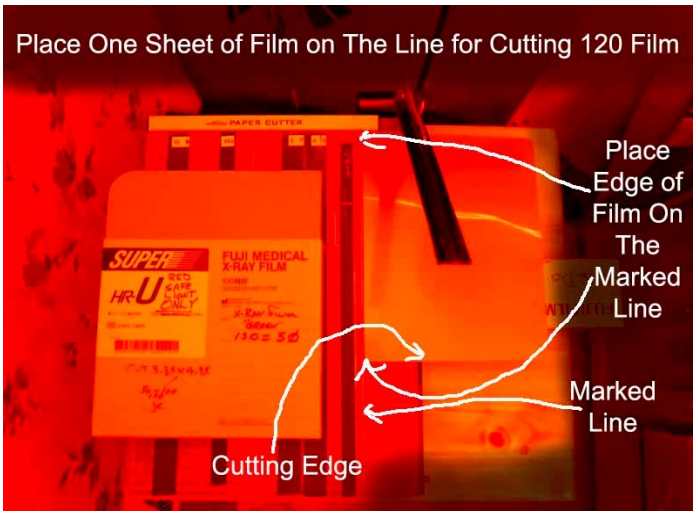
Before beginning any project that might “pop” into your head - Make sure you have the tools, and supplies needed, not only do what you want, but to complete the task. For this project, here is a list of items you will need:

1.) Rubber Gloves.
2.) Paper Cutter.
3.) “Scotch” Tape.
4.) Small Scissors
5.) Salvaged 120 Black Backing Paper

When you begin, place all of the materials listed above on a table and get comfortable. This includes, after turning on the safe-light, and turning off any “normal” light that might be a hindrance to your work. Just sit there for a few moments and let your vision become comfortable in the rather dim light.

When ready, open the box of X-Ray film and remove One sheet. Lay the remainder that is in the box, aside out of the way of the work. Mark on the paper-cutter bed where the EXACT distance from the “Blade’s Cutting Edge”. I have prepared lines with Gaffer’s tape, as well as lines on my cutter’s bed.

Here is the Reference Line Used For 120 Film
It is a Very Good Idea To Mark Lines On The Cutting Board. As it is Difficult to See in The Safelight.



Next - Do NOT let the film slip away from the reference line, and hold the film firmly to the cutting board. *(One can see here, the cutter I use, has a “hold-down”. This was not good for this film cutting as it could leave scratches on the film. I have glued two layers of felt cloth to the underside of the hold-down.)* Remember to hold this down with your fingers firmly to the cutting board - Now, with one smooth motion - make the cut. Do this operation till you have enough strips to tape together to fit the film area on some used 120 backing paper.

The next step, is to arrange the strips into one long piece of film, And affix a used 120 strip of used black backing paper.

>>>> NOTE <<<<

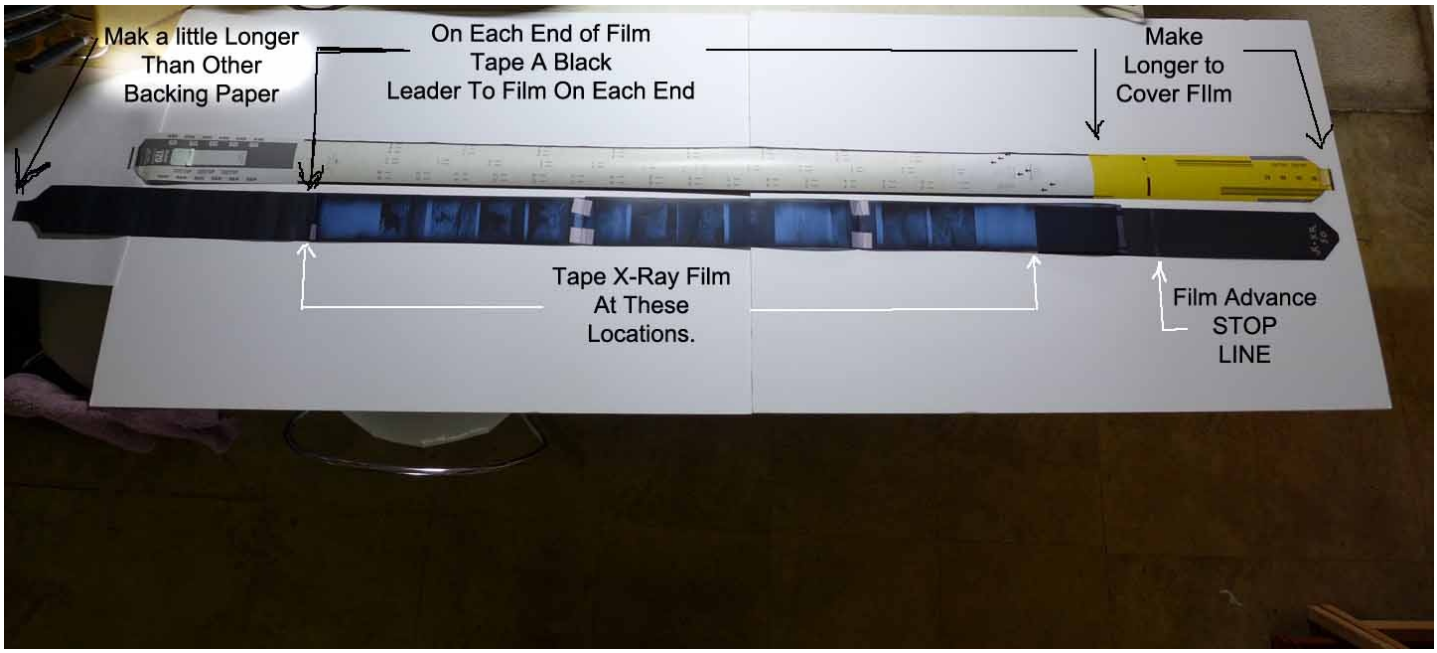
If you happen to accidently let go, or drop, the spool - it WILL uncoil on the spool as the film is very "springy" in it's nature. – As long as the floor was clean where you are in your darkroom, you can re-roll it again onto the spool.

After taping the film section together, place the labeled EXPOSED end of the backing paper onto a spool, and align it perfectly to the sides of the spool. After a few turns and before you see the film part about to enter the spool, grip the spool tightly with your thumb and forefinger and pull tightly. Then after the film has entered the spool about three turns pull tightly in the same manner as before. Repeat this tightening ever so often to assure good winding of the film, and the backing paper, onto the spool. You will also take note that after rolling in the X-Ray film the roll will be must a little "full". This is due to the fact that X-Ray film is about twice as think as panchromatic films. I recently only used the black backing paper as a "leader" to seal out the light of about four to five revolutions of the front and back ends of the X-Ray film onto the stool. (***You might have seen (or felt this) on 220 rolled films that have more capacity than 120 films.***) I did this not only to give some leeway for the film to be in the dark of the camera body, as well as protect the exposed film on the spool from ambient light entering from the shoulders of the sides of the spool. *I mark with pencil a winding stop point to lineup with the "dots",or little arrows, in the cameras body as where to stop advancing the film as you were getting to the start of the film*. (***This is ONLY for a "Mechanical Stop Counter" Camera.***)

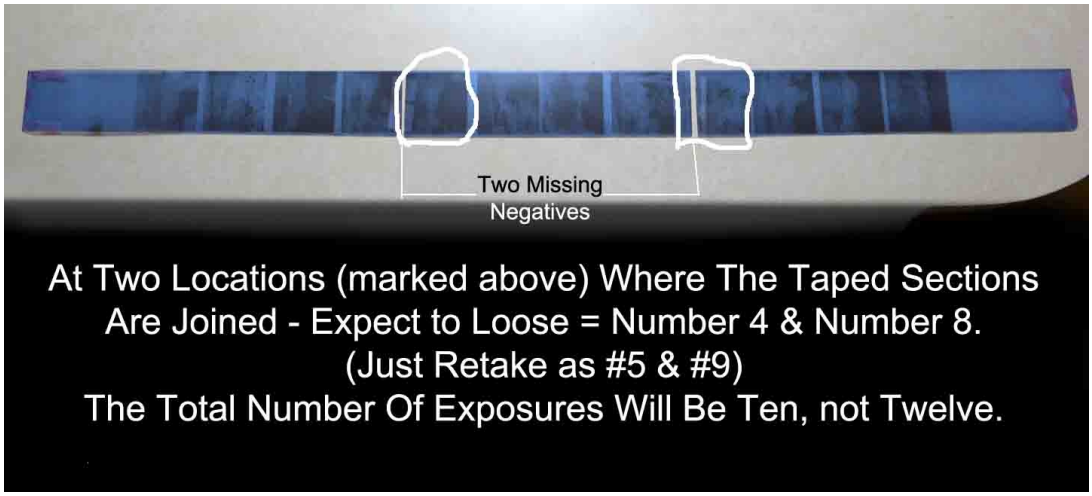
Now - Packaging and storage -

In that you may roll as many as you want to, or have Black Backing Paper for, you shall need to give it a little bit protected. First off, I always wrap my rolls in aluminum foil, and mark on it just what it is. In this case, I write on the foil ***"XR-50"***. This indicates that wrapped in the foil is "X-Ray Film of 50 ISO" Film. Because that the rolled backing papers are labeled as the previous film (i.e. Kodak TRI-X) you can use a gummed label over the Kodak markings and write whatever you desire.

Here is what I did for the Black Paper Leaders attached to the film:



And in aluminum foil wrappings:


Two Missing
Negatives
At Two Locations (marked above) Where The Taped Sections
Are Joined - Expect to Loose = Number 4 & Number 8.
(Just Retake as #5 & #9)
The Total Number Of Exposures Will Be Ten, not Twelve.

Be advised - That because of the joining of the strips of film = You Will Loose a certain number of image frames. Two to be correct. I think that it is almost an impossibility to get the separations exactly at the points between the exposures. Especially with cameras that have the “little red window” to show where to stop advancing the film between each.

Development:

As I make my own developers I can only tell about the way I do this:

I have found a way to do “TANK PROCESSING” as I did not like the “tray process” of development of X-Ray films. (For a full explanation of my process see my PDF article - titled ***“My Development of X-Ray Films”***.) If you can not find this in the “Files” Section on this Facebook Group. I will be happy to send it to you via the FB Messenger - or - your E-Mail.

However - For those of you who are Experimenting Chemical Photographers = Here is the formula I have readjusted to work very well with the development of X-Ray Films:

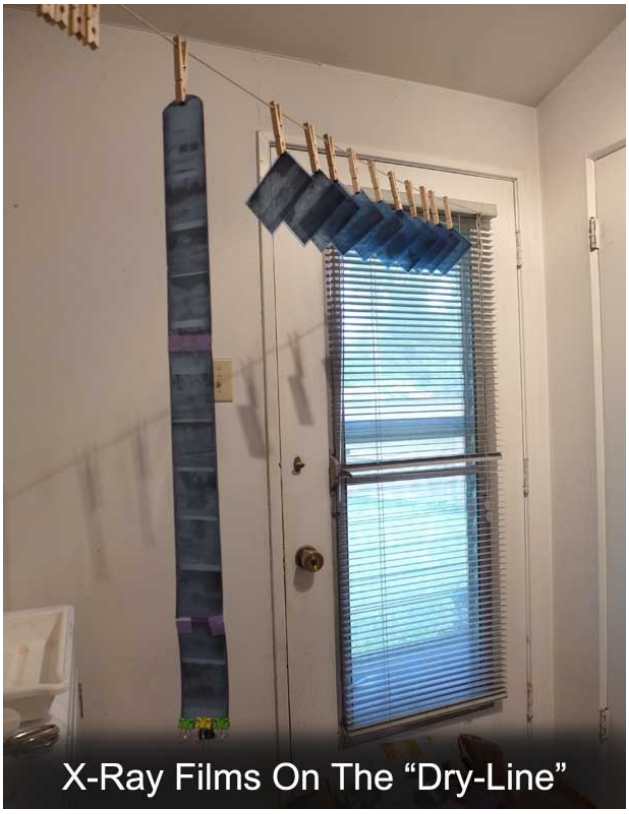
Here is the ***“Ansco-30/JK Reformulated X-Ray Developer”*** - “Tank Developer Solution”.

Water - at 120 Degrees F. ----------750ml.
1.) Metol ---------- 3.0 Grams. (Reduced)
2.) Sodium Sulfite ---------- 70.0 G. (Increased)
3.) Hydroquinone ---------- 4.0 G. (Reduced)
4.) Sodium Carbonate ----------20.0 G. (Reduced)
6.)Potassium Bromide ---------- 5.5 G. (Increased)
Cold water to make a Full 1 liter of Solution. (STOCK solution.)
((REMEMBER - as with all development chemical formulas - You MOST add the chemicals as written above - 1 through 6.))

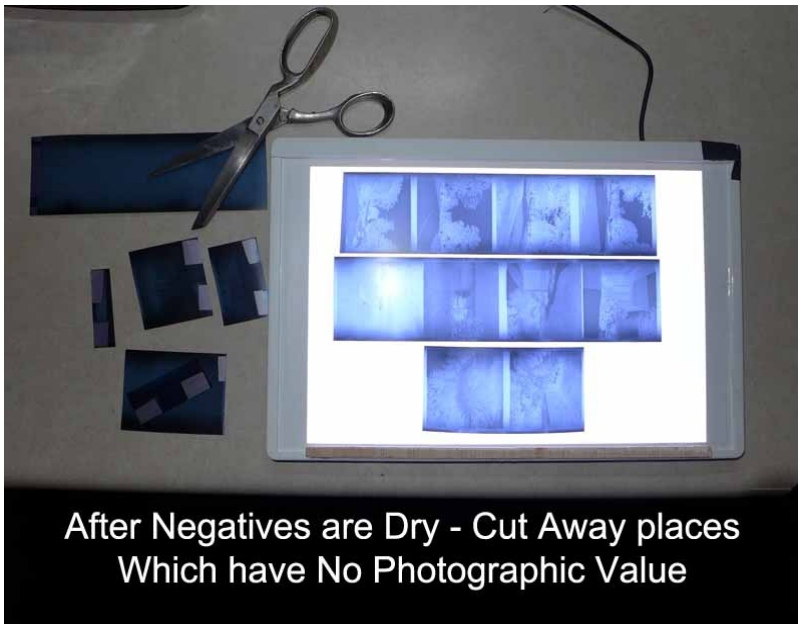
For a working solution --
Take One Part of this Stock to 24 Parts of Water. That is a **1:25 Ratio**. (i.e.= 1 Oz. stock to 24 Oz. Water)
The times will vary with the temperature of the working solution, anywhere from four to eight minutes. (20 Degrees C. = 6 minutes)

Regular Stop and Fixer.
Rinse well and hang to dry.

Oh - Yeah! BTW- You can roll X-Ray film on to 620 spools as well... ;-)



X-Ray Films On The “Dry-Line”



After Negatives are Dry - Cut Away places Which have No Photographic Value

R.B. Graflex / Refitted with a 120 Roll Film Holder - (Camera Build Date= 1915)

Above - my camera used for photos in this article. (*R.B. Graflex Series “B” 3 1/4" X 4 1/4" - Including the “MAG-BAG” and a 120 Roll Film Holder*)

Thank You for Reading.

James R. Kyle, Photographer - Saint Louis, Missouri, U.S. of A.